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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN FREDERICK PORTER

Appeal 2009-009445
Application 10/696,751
Technology Center 1700

Decided: June 25, 2010

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and CATHERINE Q. TIMM, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 17, 18, 21-28, 30-32, 34, 35, and 37. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

Appellant claims a method of making a reinforced smooth cementitious board having a cement skin which comprises depositing a layer of hydraulic cementitious material on a reinforcement fabric constructed of an open mesh united with a thin, porous nonwoven web, penetrating the open mesh with the cementitious material, promoting penetration through the nonwoven web by a portion of the cementitious material to form the cement skin by having the nonwoven web comprise alkali resistant polymer fibers coated with a hydrophilic material, and thereby embedding the web in the cementitious material at a depth from the outer face (claim 17).

Representative claim 17 reads as follows:

> 17. A method of making a reinforced smooth cementitious board having a cement skin adjacent to an outer face, comprising:
>
> (a) depositing a reinforcement fabric and a layer of hydraulic cementitious material, one on the other, wherein the reinforcement fabric comprises an open mesh united with a thin, porous nonwoven web;
>
> (b) penetrating the open mesh with the layer of hydraulic cementitious material and imbedding the open mesh in the layer of hydraulic material;
>
> (c) promoting penetration through the thin, porous nonwoven web by a portion of the layer of hydraulic cementitious material to form the cement skin adjacent to the outer face by having the thin, porous nonwoven web comprise alkali resistant polymer fibers coated with a hydrophilic material;
>
> (d) penetrating through the thin, porous nonwoven web by said portion of the layer of hydraulic cementitious material to form the cement skin adjacent to the outer face and embed

> the thin, porous web in the layer of hydraulic cementitious material at a depth from the outer face; and
>
> (e) curing the layer of hydraulic cementitious material to form a layer of hardened cementitious material imbedding the open mesh and the thin, porous nonwoven web at a depth from the outer face, wherein a portion of the layer of hardened cementitious material comprises the cement skin adjacent to the outer face.

The references set forth below are relied upon by the Examiner as evidence of obviousness:

Galer	4,450,022	May 22, 1984
Schupack	4,617,219	Oct. 14, 1986
Palmer	6,001,935	Dec. 14, 1999
Newman	6,054,205	Apr. 25, 2000
Murphy	6,176,920 B1	Jan. 23, 2001
Mathieu	6,187,409	Feb. 13, 2001
Cooper	6,254,817 B1	Jul. 3, 2001
Sukiewicz (aka Canada)	CA 2,006,149	June 20, 1991

The Examiner rejects claims 17, 18, 22, 23, 26-28, 30-32, 34, and 35 under 35 U.S.C. § 103(a) as being unpatentable over Newman in view of Mathieu, Galer, Canada, Murphy, and Palmer; and the Examiner correspondingly rejects claims 21 and 37 over these first mentioned references and further in view of Cooper as well as claims 24-26 over the first mentioned references and further in view of Schupack.

Appellant's argument against these rejections is limited to sole independent claim 17. Accordingly, the remaining dependent claims on appeal including the separately rejected dependent claims will stand or fall with sole independent claim 17.

We will sustain the rejection of claim 17 as well as the rejections of the non-separately argued dependent claims based on the findings of fact, conclusions of law, and rebuttals to argument expressed by the Examiner and the Answer. We add the following comments for emphasis.

As background, the Examiner finds that Newman discloses a method of making a smooth cementitious board which comprises depositing a layer of cementitious material on a reinforcement fabric or facing sheet constructed of an open mesh united with a nonwoven web of alkali resistant fibers, and at least partially penetrating through the nonwoven web by the cementitious material, thereby at least partially embedding the web in the cementitious material (Ans. 4-8). The Examiner also finds that Mathieu and Galer would have suggested completely penetrating cementitious material through Newman's nonwoven web to thereby form a cement skin and completely embed the web in the cementitious material (*id.* at 8-10). Finally, the Examiner finds that Canada, Murphy, and Palmer would have suggested coating the alkali resistant polymer fibers of Newman's nonwoven web with a hydrophilic material (*id.* at 10-13).

Based on these findings, the Examiner reaches the following conclusion of obviousness:

> With respect to promoting penetration, it would have been obvious to one of ordinary skill in the art to apply a hydrophilic material as claimed to the fibers of the mesh and melt blown web (non-woven web) in Newman et al's process when completely embedding and forming a cement skin as suggested by Mathieu and Galer since (1) Canada suggests spraying suitable polymer such as acrylic resin to facilitate penetration of cementitious material (i.e. cement) into fabrics, (2) Murphy et al suggests coating a scrim with water to reduce surface tension of the cementitious material and thereby

> facilitate complete embedment of the scrim 96 into the cementitious material (figure 5, col. 5 lines 20-39) and (3) Palmer teaches imparting a hydrophilic coating to fibers of woven or non-woven fabric made of polymer such as polypropylene where it is desirable to make the surface of the fiber more hydrophilic for better or easier incorporation into a water-borne composition such as a cement slurry (abstract, col. 1 lines 5-23, col. 8 lines 58-64 and col. 10 lines 8-10).

(*Id.* at 13).

Appellant disagrees with the Examiner's finding that cementitious material at least partially penetrates through the nonwoven web of Newman (App. Br. 4-7). Based on this disagreement, Appellant argues that it would not have been obvious to modify Newman in the manner proposed by the Examiner wherein Newman's web would be coated with hydrophilic material as suggested by Canada, Murphy and Palmer and wherein the web would be completely embedded so as to thereby result in a cement skin as suggested by Mathieu and Galer (*id.* at 7-14).

Appellant's position is not well taken.

The Examiner's finding that cementitious material at least partially penetrates Newman's nonwoven web (Ans. para. bridging 6-7, para. bridging 17-18) is based on Newman's disclosure as a whole and especially Figure 8 (e.g., see embedded facing sheet 72) as well as the following column 9 disclosure:

> When the glass fiber facing sheet 10 is pressed into the cementitious slurry 76 or slurries, the cementitious slurry is forced up through the mesh openings 40 of the glass fiber facing sheet 10. The force of gravity then causes the cementitious slurry 76 to sink back down away from the glass fiber facing sheet 10 and form meniscuses within the mesh openings. Nevertheless, the melt blown polymer web 20 prevents the cementitious slurry 76 from sinking into the large

> mesh openings 40 of the glass fiber facing sheet 10. Instead, the melt blown polymer web 20 maintains a portion of the cementitious slurry 76 on the surface of the glass fiber facing sheet 10 and causes the slurry to window pane the mesh openings 40 of the glass scrim 15 thereby forming a substantially planar bridge surface between the transverse and longitudinal yarns, 25 and 30.

(Col. 9, ll. 43-57).

As correctly explained by the Examiner, "[c]ementitious slurry 76 must penetrate the mesh openings 40 of the scrim 15 and must at least partially penetrate the openings of the porous thin melt blown polymer web 20 when slurry 91 is not used because Newman et al explains that '… the melt blown polymer web 20 prevents the cementitious slurry 76 from sinking into the large mesh openings 40 of the glass fiber facing sheet 10' (col. 9 lines 49-51)" (Ans. para. bridging 17-18).

On this record, Appellant has provided no argument or evidence which reveals error in the Examiner's above quoted explanation and concomitant finding that Newman's cementitious slurry 76 at least partially penetrates web 20.

In an attempt to show the Examiner's finding to be erroneous, Appellant refers to an embodiment wherein Newman's web 20 is a microporous layer 220 which provides a water resistant surface but which nonetheless allows gases such as water vapor to pass through the layer. (Reply Br. 5). Appellant then argues that "[i]t would be inconsistent and not reasonable for a microporous web 20 to pass water vapor and resist water, but be penetrable by a hydrated compound, i.e., slurry 76" (*id.* at para. bridging 5-6; emphasis deleted).

This argument is unpersuasive.

Newman's disclosure of microporous layer 220 is limited to the Figure 3 embodiment wherein the web has the highest basis weight of between about 45 and 75 g/m^2 and wherein the web is subjected to heat and pressure to melt the web fibers so as to form the microporous layer 220 (col. 7, ll. 11-23). Appellant's argument is irrelevant to Newman's Figures 1 and 2 embodiments which have lower basis weights and whose web fibers are not melted as in the Figure 3 embodiment. Furthermore, this argument is contradicted by Figure 8 of Newman and the disclosure relating thereto (col. 9, l. 1- col. 10, l. 18) which shows cementitious slurry 76 as having passed through lower facing sheet 72 of open mesh and nonwoven web.

In this latter regard, Appellant argues that "[t]he slurry 76 can not penetrate the water resistant, microporous web in the bottom facing sheet 72, because the slurry 76 then would fall away from the bottom facing sheet 72 due to gravity" (Reply Br. 12).

This argument is unconvincing because it is implicitly based on the irrational assumption that Newman's continuous process of making reinforced cement boards (see Figure 6) somehow occurs while bottom facing sheet 72 and cementitious slurry 76 are suspended in mid air.

Finally, the Examiner's finding that Newman's cementitious slurry 76 must at least partially penetrate nonwoven web 20 is also supported by the undisputed fact that Newman expressly discloses an embodiment wherein the web 20 is applied to both faces of open mesh scrim 15 (col. 6, ll. 1-3). That is, in using this embodiment, cementitious slurry necessarily would have to pass through the nonwoven web in order to become mechanically integrated with the open mesh scrim which both the Examiner and Appellant agree is the goal desired by Newman.

Appellant acknowledges Newman's disclosure of an embodiment wherein web 20 is applied to both faces of open mesh scrim 15 (Reply Br. 18). Nevertheless, Appellant argues that such an embodiment would not be used in Newman's method because "a web 20 on both faces of the scrim 15 would be water resistant on both faces, which would resist penetration of the slurry into the scrim 15" (*id.*). This unpersuasive argument is based on the false premise that all of the web embodiments disclosed by Newman constitute a microporous, water resistant layer. As explained earlier, only the web embodiment of Figure 3 constitutes such a layer. The other web embodiments of Figures 1 and 2 are not disclosed by Newman as being either microporous or water resistant.

For the reasons set forth above and in the Answer, Appellant has failed to show error in the Examiner's rejection of independent claim 17. Accordingly, we sustain the rejection of this independent claim as well as the rejections of the remaining, non-separately argued dependent claims on appeal.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

kmm

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